

EXHIBIT 2

**AAR Manual of Standards and Recommended Practices
Specifications for Tank Cars**

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APPENDIX M

Alloy steel	ASTM A351, Grades CF8M, CN7M, CF8, CD4MCu, CF3, CF3M																	
	ASTM A743, Grades CA-15, CF-8, CF-3, CF-3M, CF-8M, CN-7M, CF10SMnN																	
	ASTM A744, Grades CF-8, CF-3, CF-8M, CF-3M																	
	ASTM A747, Alloy CB7Cu-1, CB7Cu-2																	
	Alloy steel castings, when required by DOT 179.201-4 for corrosive service, must be tested in accord with ASTM A262 Practice A. If the specimen does not pass Practice A, Practice B or C must be used, and the corrosion rate must not exceed the following:																	
	<table><tr><th rowspan="2">Test Procedure^{a/}</th><th rowspan="2">Material</th><th colspan="2">Corrosion rate</th></tr><tr><th>in/mo</th><th>mm/mo</th></tr><tr><td>Practice B</td><td>CF-3, CF-8, CF-3M and CF-8M</td><td>0.004</td><td>0.102</td></tr><tr><td>Practice C</td><td>CF-3 and CF-8</td><td>0.002</td><td>0.051</td></tr></table>				Test Procedure ^{a/}	Material	Corrosion rate		in/mo	mm/mo	Practice B	CF-3, CF-8, CF-3M and CF-8M	0.004	0.102	Practice C	CF-3 and CF-8	0.002	0.051
Test Procedure ^{a/}	Material	Corrosion rate																
		in/mo	mm/mo															
Practice B	CF-3, CF-8, CF-3M and CF-8M	0.004	0.102															
Practice C	CF-3 and CF-8	0.002	0.051															
	^{a/} The test specimen may be finished on all surfaces by machining or grinding prior to testing.																	
Copper base alloy	ASTM B61 ASTM B62																	
Nickel and Nickel Alloys	ASTM A494, Grades CZ-100, M-35-1, M-35-2, M-30H, M-30C, CW-12MW, CW-2M, CW-6M, and N-12MV Grade M-30C or M-35-1 should be used when weldability is desired. Grades M-30C, M-35-1, and M-35-2 have equal corrosion resistance and can be used interchangeably.																	
Aluminum	ASTM B26 ASTM B108 Aluminum castings must not be used, except where required by the nature of the lading.																	

4.5.3 Gray cast iron is not authorized for fittings in contact with the lading on all classes of tank cars. When specified for AAR 207W pressure-differential covered hopper cars, gray iron must comply with the following:

ASTM A126, Class B
ASTM A278, Class 30

4.6 Miscellaneous Tank Materials

4.6.1 The following list is intended to be used as a guide in the selection of materials for manway covers, flanges, pads, reinforcing plates, structural shapes, nozzles, pipe, and tubes. These materials are approved for general use, provided they are compatible with the tank plate materials of paragraph 3.0, Table M10, and castings of paragraph 4.5 (all in this appendix), where applicable. They are not intended to exclude the use of suitable materials described by other specifications. Other materials may be used on specific approval of the Tank Car Committee.

4.6.2 The materials listed hereafter are supplemental to the plate materials of paragraph 3.0, Table M10, and castings of paragraph 4.5 (all in this appendix) and may be used for the same pur-

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pose, except that they may not be substituted for or used in place of required plate materials specified in DOT 179 for tank shells and heads, manway nozzles, or expansion domes.

4.6.3 All steels defined by the specifications hereafter must be manufactured by the open hearth, electric furnace, or basic oxygen process. Bessemer steel is not acceptable.

Steel plates, shapes, bars, sheet, and strip	ASTM A36 Structural Steel ^d
	ASTM A242 Structural Steel
	ASTM A283 Structural Plates, Grades A, B, C, D ^d
	ASTM A455 Plates, Pressure Vessel (0.31 carbon max.)
	ASTM A529 Bars and Shapes
	ASTM A570 Structural Sheet and Strip, Grades 30, 33
	ASTM A572 Structural Steel, all grades, Type 2
	ASTM A575 Bars, Merchant Quality, AISI and M Grades 1008-1025, inclusive ^d
	ASTM A576 Bars, Special Quality, AISI Grades 1008-1026, inclusive ^d
	ASTM A612 Plates, Pressure Vessel
Forgings	CSA G40.21, Types W, WT, A, and AT
	ASTM A105 Steel
	ASTM A181 Steel, Classes 60 and 70
	ASTM A182 Alloy Steel
Aluminum bars, rods, and shapes	ASTM A350 Low Temperature Steel
	ASTM B211 Rolled Bars, Rods
	ASTM B221 Extruded Bars, Rod Shapes
Nickel	ASTM B308 Structural Shapes, Rolled or Extruded Alloy 6061-T6
	ASTM B160 Rod and Bar
Steel pipe and tubes	ASTM A53 Welded and Seamless Pipe
	ASTM A106 Seamless Pipe
	ASTM A161 Seamless Tubes
	ASTM A178 Welded Tubes
	ASTM A192 Seamless Tubes
	ASTM A512 Welded Mechanical Tubing, AISI and MT Grades 1010-1025, inclusive
	ASTM A513 Welded Mechanical Tubing, AISI and MT Grades 1008-1026, inclusive ^d
	ASTM A519 Seamless Mechanical Tubing, AISI and MT Grades 1008-1026, inclusive
Stainless steel pipe and tubes	ASTM A269 Seamless and Welded Tubing ^d
	ASTM A312 Seamless and Welded Pipe
	ASTM A511 Seamless Steel Mechanical Tubing ^d